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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,928	03/01/2002	Kazuo Fujibayashi	03500.016243	7120

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EXAMINER

MEYER, DAVID C

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 06/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/084,928

Applicant(s)

FUJIBAYASHI ET AL.

Examiner

David C. Meyer

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29-34 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,10,13-16 and 22-26 is/are rejected.
- 7) ☒ Claim(s) 3,7-9,11,12,17-21,27 and 28 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Schmidt (US 6,088,134).

Regarding claim 1, Schmidt discloses a scanning system comprising an optical element 62 that conveys image information onto a detector array 25. Optical element 62 includes a plurality of reflecting surfaces 32,33,42. The reflecting surfaces redirect incident light through different respective angles of emergence. Reflecting surfaces 32 and 33 are curved. (See Fig. 6b and column 9, lines 21-27.)

Regarding claim 2, the optical element illustrated in Fig. 6b of Schmidt redirects incident light originating at a scan object plane 37 such that it emerges from the optical element perpendicular to its incident direction.

3. Claims 1, 2, 4-6, 10, 13, 15, 16, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Imamura (US 4,769,718).

Regarding claim 1, Imamura discloses an imaging processing apparatus having means for producing image information on a line sensor. The apparatus comprises a reflector 3 as an optical element. The reflector possesses a plurality of reflecting

Art Unit: 2878

surfaces, some of which are curved. Each surface receives light from a light source 1 at different angles of incidence. The reflector effects multiple reflections until light emitted by the light source emerges from the reflector in the direction of the document table and picture. (See Figs. 2, 4, and 5.)

Regarding claim 2, Fig. 2 of Imamura illustrates a light source that emits light in multiple directions, yet the reflector redirects this light in a different direction of emergence onto picture 5.

Regarding claim 4, Imamura discloses an image processing apparatus comprising a document table 109 on which a picture 5 to be imaged is placed, a photodetecting sensor 4, and a reflector 3 as an optical element. The sensor 4 may have "an elongated narrow light-receiving surface". In other words, it may be a line sensor. The reflector possesses a plurality of reflecting surfaces, some of which are curved. Each surface receives light from a light source 1 at different angles of incidence. The reflector effects multiple reflections until light emitted by the light source emerges from the reflector in the direction of the document table and picture. (See Figs. 2, 4, and 5.)

Regarding claim 5, Fig. 2 of Imamura illustrates a cross section of the image processing apparatus. The plane of the cross section, in which incident light beams from the light source are pictured, is perpendicular to the sensor. Hence, the bending direction of the reflector optical element is perpendicular to the sensor.

Regarding claim 6, Fig. 2 of Imamura illustrates a light source that emits light in multiple directions, yet the reflector redirects this light in a different direction of emergence onto picture 5.

Regarding claim 10, the light redirected by reflector 3 originates at light source 1. Hence, it does not include image information of an original document or picture.

Regarding claim 13, the internal medium of reflector 3 is air.

Regarding claims 15 and 16, the surfaces making up reflector 3 intersect one another and are continuous. Hence, portions of the reflector that reflect light counter-clockwisely are continuous, and portions of the reflector that reflect light clockwisely are continuous. In Fig. 2, the upper and left portion of reflector 3 could be called a minus, clockwisely-deflecting surface, and the lower and right portion of reflector 3 could be called a plus, counter-clockwisely deflecting surface.

Regarding claim 22, Imamura discloses that sensor 4 may have "an elongated narrow light-receiving surface so as to conform the width of an optical image of a picture to be read". Meanwhile, reflector 3 is structured to direct a narrow angle (in a direction perpendicular to the elongated surface of sensor 4) light beam onto original image 5. It follows that the beam width of the light exiting reflector 3 is small compared to the beam width in a line direction of sensor 4.

Claim Rejections - 35 USC § 103

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

Art Unit: 2878

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imamura in view of Schmidt (US 6,088,134). Imamura discloses all claim limitations except that the internal medium of reflector 3 is optically transparent glass or plastic. It is well known to construct an optical element such that it has an internal medium of optically transparent solid material as taught by Schmidt. Schmidt discloses an optical element 62 used to direct image information onto a sensor. The element is formed of a solid optical material, of which glass and plastic are two clear examples. Absent any showing of criticality, the internal medium employed in the optical element in Imamura would have been obvious to one of ordinary skill in the art at the time of invention in view of production cost and performance requirements.

7. Claims 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imamura (US 4,769,718).

Regarding claims 23, 24, and 26, Imamura discloses an image processing apparatus comprising a document table 109 on which a picture 5 to be imaged is placed, a photodetecting sensor 4, and a reflector 3 as an optical element. The sensor 4 may have "an elongated narrow light-receiving surface". In other words, it may be a line sensor. The reflector possesses a plurality of reflecting surfaces, some of which are curved. Each surface receives light from a light source 1 at different angles of incidence. The reflector effects multiple reflections until light emitted by the light source emerges from the reflector in the direction of the document table and picture. (See Figs. 2, 4, and 5.) The reflector of Imamura is a type of reflecting mirror. Hence, Imamura teaches the use of a reflecting mirror in an image processing apparatus. While Imamura does not disclose a reflecting mirror in addition to reflector 3, it would have been obvious to one of ordinary skill in the art at the time of invention to arrange additional reflecting mirrors in view of the relative arrangement of the light source, original document, and sensor.

Regarding claim 25, Fig. 2 of Imamura illustrates a cross section of the image processing apparatus. The plane of the cross section, in which incident light beams from the light source are pictured, is perpendicular to the sensor. Hence, the bending direction of the reflector optical element is perpendicular to the sensor.

Allowable Subject Matter

8. Claims 3, 7-9, 11, 12, 17-21, 27, and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form

including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 3, the prior art of record does not disclose or fairly teach the invention as claimed, specifically wherein a stop is arranged between intersecting surfaces of the multi-surface off-axial optical element.

Regarding claims 7-9, the prior art of record does not disclose or fairly teach the invention as claimed, specifically wherein in an image reading apparatus, a light ray enters multi-surface off-axial optical element and exits in a direction perpendicular, opposite, or equivalent to the direction of entry.

Regarding claims 11-12, the prior art of record does not disclose or fairly teach the invention as claimed, specifically wherein in an image reading apparatus, a stop is arranged near the center of a multi-surface off-axial optical element between an entry and an exit surface thereof.

Regarding claims 17-21, the prior art of record does not disclose or fairly teach the invention as claimed, specifically wherein the multi-surface off-axial optical element has six off-axial reflecting surfaces.

Regarding claims 27-28, the prior art of record does not disclose or fairly teach the invention as claimed, specifically wherein in addition to the multi-surface off-axial optical element, a reflecting mirror is arranged opposite an original to be imaged from the optical element, or in parallel to said optical element.

9. Claims 29-34 are allowed. The following is an examiner's statement of reasons for allowance: Regarding claims 29-34, the prior art of record does not disclose or fairly

Art Unit: 2878

teach the invention as claimed, specifically wherein in an image reading apparatus, a stop is arranged between intersecting surfaces of the multi-surface off-axial optical element.

Conclusion


10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kaneko (US 6,160,641) discloses a scanner optical system comprising an optical element. The optical element does not incorporate off-axial surfaces.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Meyer whose telephone number is 703-305-7955. The examiner can normally be reached on M-F 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on 703-308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0935.

DCM
June 3, 2003


DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY